Sept. 22, 1925. 1,554,800

W. W. DODGE, JR

HAIR CURLER

Filed April 18, 1923 2 Sheets-Sheet 1

Fig. 1.

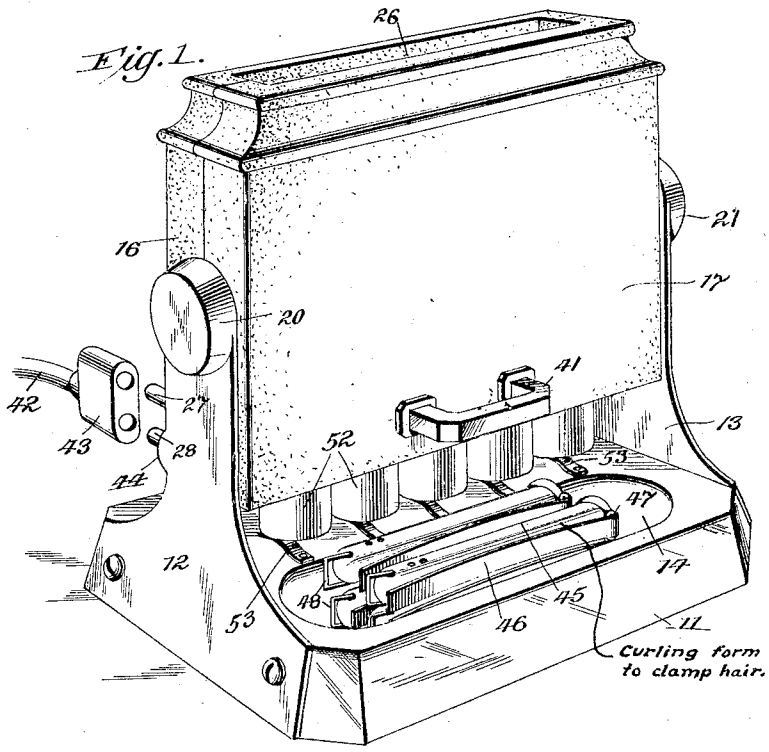

Fig. 5.

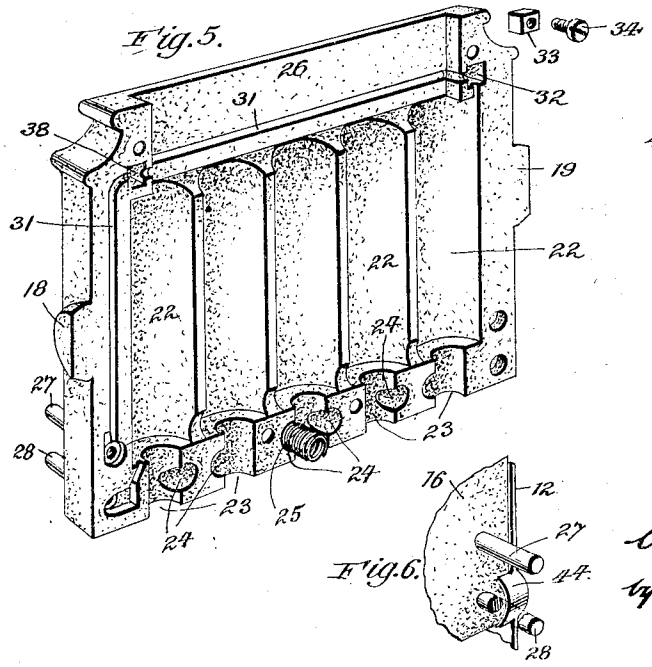

Fig. 6.

Fig. 7.

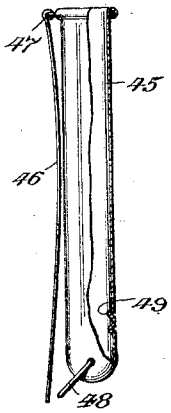

Fig. 8.

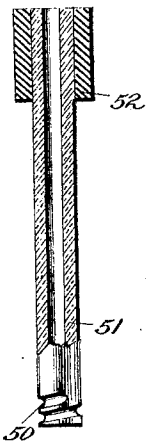

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Fig. 2.

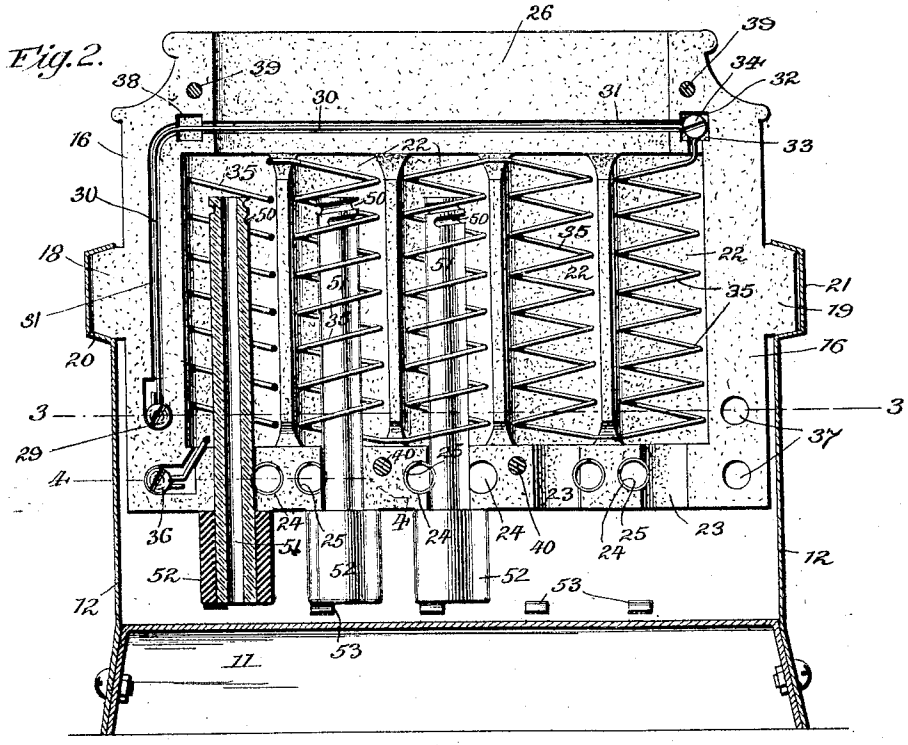


Fig. 3.

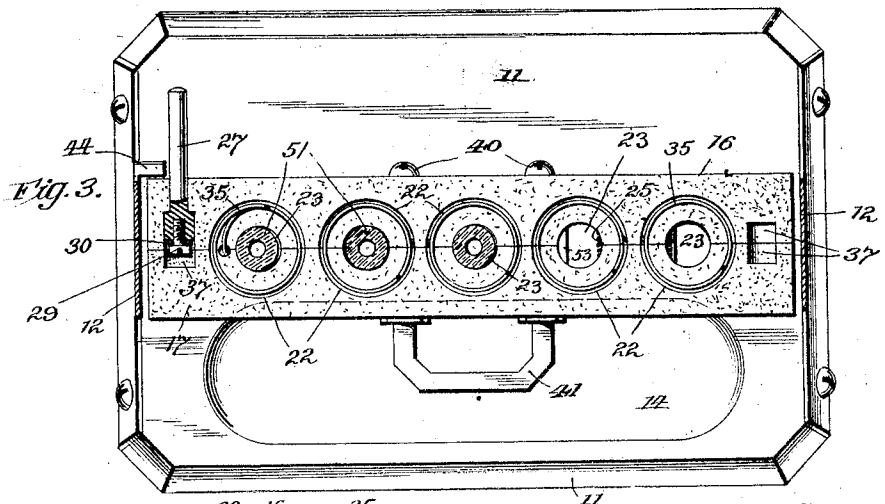
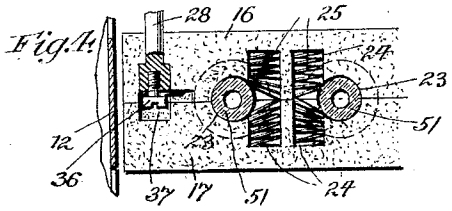


Fig. 4.



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Patented Sept. 22, 1925. 1,554,800

UNITED STATES PATENT OFFICE.

WILLIAM W. DODGE, JR., OF MERIDEN, CONNECTICUT.

HAIR CURLER.

Application filed April 18, 1923. Serial No. 632,936.

To all whom it may concern:

Be it known that I, WILLIAM W. DODGE, Jr., a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Hair Curlers, of which the following is a specification.

This invention relates to toilet devices, and particularly to an outfit for use in curling hair.

The object of the invention is to simplify manipulation, eliminate any possibility of burning the hair, and shorten the time necessary to complete the curling operation.

Heretofore it has been proposed to wrap the hair on tubes having hair-retaining means, and then insert a heated rod into successive tubes to heat the tubes. This method is unsatisfactory for various reasons. The crude heating means used leads to overheating the rods and hence to burning the hair; the time consumed in heating the tubes one by one is unduly long; the absence of any means to retain the rod in the tube, requires the user to hold the rod in the hand for long periods so that the use of the device is tiring and time consuming.

Also, it has been proposed to wind the hair on a series of forms, or shells, having electrical heating elements permanently enclosed in them, the winding of the hair being done while the forms are cold, and the forms being thereafter heated simultaneously by passing a current through all. Such devices have included permanent electrical connections to each form, and these make manipulation difficult, while the necessity of remaining connected to an electric fixture during the heating period involves an annoying waste of time.

In the present invention, I make use of tubes having hair-retaining bows, or clips, and provide a heating rod for each tube, the tube and rod being so contrived that the rod may be retained in the tube without being held by the user. Furthermore, I provide a heater which sustains and heats all the rods at once, and heats them to a definite predetermined safe temperature. Burning of the hair is thus precluded.

Much time is saved by proceeding according to the following general method: the rods are all inserted in the heater and the heater is turned on. While the rods are heating, the user winds her hair onto the various tubes and fastens it with the bows or clips. By the time the winding operation is completed, the rods will be hot, so that they are then withdrawn successively from the heater, inserted into, and fixed in, corresponding tubes. The user is then free to continue dressing, awaiting a convenient opportunity to remove the rods and tubes.

The above general principle may be embodied in various specifically different structures, but I prefer the construction illustrated in the accompanying drawings, which disclose certain ancillary structural features also a part of my invention.

Figure 1 is a perspective view of the complete device;

Figure 2 is a vertical axial section showing three rods in place in the heater, one of said rods being illustrated in section;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a perspective view of one of the two sections which make up the housing of the heater;

Figure 6 is a perspective view of a safety lug used to require the disconnection of the heater before the heated rods can be withdrawn;

Figure 7 is a view partly in elevation and partly in section of one of the hollow hair curling forms;

Figure 8 is a view partly in longitudnal section and partly in elevation showing one of the heater rods.

The device rests on a base 11, which is formed with two upstanding brackets 12 and 13, and which is provided with a tray, or pocket, 14 to receive the hair curling forms when not in use.

The housing of the heater is made of two substantially identical sections 16 and 17

whose construction and mode of connection will be more fully disclosed hereafter. When assembled, the two sections 16 and 17 conjointly provide two trunnions 18 and 19, which turn in pockets, or bearings 20 and 21 formed to receive them at the upper extremities of the members 12 and 13.

The sections 16 and 17 of the heater housing are, as stated, substantially identical and indeed may be molded in the same mold. They differ chiefly in the presence or absence of certain metallic inserts, used to connect and support resistance wires and circuit wires forming part of the heater structure.

The particular heater chosen for illustration is one designed to heat five rods, but any desired number might be heated by obvious modification of form.

The two housing sections 16 and 17, when assembled, cooperate to provide five substantially cylindrical vertical chambers 22, each of which is alined at its lower end with a smaller passageway 23, through which the rod to be heated is inserted. At the side of each pasageway 23 is a cylindrical recess 24, which is designed to receive a coil spring 25. The recess 24 is so positioned relatively to the passageway 23 that the spring 25 projects into the passageway and serves to engage an inserted rod frictionally and thus retain the rod in position. The mode of such engagement is clearly shown in Figure 4. Two pockets 24 are shown located on opposite sides of the passageway 23, leading to the middle one of the five heating chambers 22. One of these is left empty and the purpose of molding two is merely to make the two housing sections symmetrical with respect to their vertical center line so that the sections 16 and 17 may be molded in the same mold.

The upper ends of the heater pockets 22 all communicate with a narrow slot 26 intended to discharge convection currents of heated air whose function is to prevent overheating of the device, as will be hereafter more fully explained.

Molded into the rear section 16 of the heater housing are two studs, or pins 27 and 28, which serve as means for connecting the electric cable. The pin 27 is connected by a binding screw 29 to an electric conductor 30, which lies in a groove 31, molded in the section 16. This groove extends upward at the left side and then across the top of the section 16 to the upper right-hand corner of the section 16 where a square recess 32 communicating with the groove 31 is provided.

Loosely mounted in the recess 32 is a square block 33, provided with a tapped hole to receive the binding screw 34. The heating element consists of a continuous length of suitable resistance wire wound in five similar coils 35, each of which lies in the corresponding one of the heater pockets 22. One end of this heater wire is connected by the block 33 and binding screw 34, with conductor wire 30. The opposite end is connected by a binding screw 36 with the lower stud 28.

The recesses 37 are functionless in the section 16, but in the section 17 afford space to clear the heads of the binding screws 29 and 36 (see Figures 3 and 4). Similarly, the square recess 38 in section 16 is functionless, but the similar recess in the section 17 affords clearance for the head of the binding screw 34.

The section 17, like the section 16, is provided with a groove 31, but that groove is without function in that section. Except for the presence or absence of the studs 27 and 28, the sections 16 and 17 are absolute duplicates and it is a simple matter so to design the mold that the studs 27 and 28 may be molded in or omitted at will. The two sections are connected together at their tops by two bolts 39, whose nuts and heads are countersunk and then sealed over with plastic material after the device is assembled. The two sections are connected at their bottoms by two screws 40, which are inserted from the back and whose ends are threaded into the handle 41.

The current is brought to the device through an electric cable 42, provided with a connector 43 of familiar form. The lug 44 mounted on the bracket 12 is so positioned as to require the disconnection of the connector 43 if the heater is swung from the vertical position shown in the drawings. The purpose of so swinging it will be described hereafter.

The hair curling forms may be varied in their shape and dimensions, but for purposes of illustration are shown as simple tubular members 45, closed at one end and open at the other.

A bow spring 46 is hinged to each form at 47, this hinge preferably being located at the open end of the form. The opposite, or free end of the bow spring 46 may be engaged by a bail or loop 48, which is pivoted to the form 45, near the opposite end. The bow spring 46 is curved longitudinally so as to present its convex side toward the form 45. This insures tight clamping of any hair wound onto the form, regardless of the amount of hair, and the flexure of the spring 46 will take care of large masses of hair when required.

The form 45 is provided with one or more (two are shown) inwardly projecting bosses 49, designed to engage the threaded end 50 of a rod 51. In the preferred form of the device this rod is tubular, but in certain cases a solid rod may be used.

The rod 51 is preferably formed of a

heat resisting glass, such as that commonly used for cooking utensils, or may be made of pure fused silica. Each rod is provided with an enlarged handle portion 52, which may be made of any heat insulating material, including glass, in fact; in certain cases the handle portion 52 may be molded integrally with the rod 51. I contemplate, however, molding the sections 16 and 17 of specially tinted heat resisting plastics and in such cases it will sometimes prove desirable in order to carry out a special color scheme, to make the handle portion 52 of some special material. Hence, I illustrate this handle portion as formed separately from the rod 51 for the purpose of indicating the possibility of so constructing it.

To heat the rods 51, they are inserted through the passageways 23 so that their ends extend within the heating coils 35. In order to establish electrical connections to the heating coil, the housing sections 16 and 17 must first be swung to vertical position. This brings the handle ends of the rods 51 into contact with the series of bow springs 53 mounted on the base 11, the springs being so positioned that they engage the rods without closing the bores thereof. Consequently, when the rods 51 are heated, there is a tendency to induce an upward draft through the various tubular rods 51 and thence to the atmosphere, through the slot 26. This arrangement is adopted to preclude overheating of the rods.

The complete outfit consists of the heater with one rod for each heating compartment in the heater, and one hair curling form for each such rod, the purpose being to heat all the rods at once and to insert them substantially at the same time into the forms which have previously been wound into the hair. The general mode of operation is as follows:

The heater is swung to horizontal position and the rods 51 are inserted through the openings 23. The heater is then swung to vertical position and if any rod 51 has not been completely inserted, it will be forced home by the corresponding spring 53. When the heater is in vertical position, the connector 43 may be slipped onto the studs 27 and 28. While the connection continues, the coils acting as resistance heaters will raise the temperature of the rods 51, and as the temperature rises the increasing air circulation will have a constantly increasing opposing tendency.

By carefully proportioning the coils 35, it is possible to limit the temperature to which the rods 51 can be heated, because the hotter the rods become, the more active is the circulation of the air. If closer regulation is necessary, various means such as thermostats, whose operation is well understood, might be adopted and while I do not consider their use necessary, and hence do not illustrate any thermostat, I do not mean to imply their necessary exclusion.

While the rods are being heated, the user winds her hair onto the forms and clamps it in place by means of the bow springs 46, and bails 48. By the time that this operation has been completed, the rods 51 will be sufficiently heated. The heater is then swung to horizontal position and if the connection 43 has not been removed, it will be automatically disconnected by the act of swinging the heater on its trunnions. The heated rods are now withdrawn from the heater and are inserted in the corresponding forms, being turned slightly so as to engage the threads 50 with the bosses 49 and thus retain the rods within the forms. The user is now free to give her attention to other matters, awaiting a convenient opportunity to remove the rods and the forms from the hair.

The purpose in arranging the device so that the rods stand handle end down during the heating operation, is to keep these handles relatively cool. I am aware, however, that the use of tubular rods is not absolutely essential, that solid rods can be used, and in such case the heater might assume various specifically different forms which will readily suggest themselves. Consequently, while I prefer the construction illustrated, I do not limit myself thereto, except to the extent specified in the claims. I recognize also that the form 45 is susceptible of being embodied in various different shapes, dependent upon the desired effect.

What is claimed is:

1. In a hair curling device, the combination of a hollow form adapted to have hair wound thereon; a releasable clamping member serving to clamp and retain hair wound on said form; a rod insertable into said form, said rod being adapted to be heated and, when heated, to heat said form; and releasable means for retaining said rod in said form.

2. In a hair curling device, the combination of a hollow form adapted to have hair wound thereon; a bow spring hinged at one end near one end of said form; releasable means for connecting the free end of said spring with said form, whereby the spring serves to retain the hair on the form; a rod insertable into said form, said rod being adapted to be heated and, when heated, to heat said form; and releasable means for retaining said rod in said form.

3. In a hair curling device, the combination of a hollow form adapted to have hair wound thereon; a bow spring hinged at one end near one end of said form; releasable means for connecting the free end of said spring with said form, whereby the spring serves to retain the hair on the form; a heating element for said form, said heating

element comprising a glass rod insertable into the form and a heat insulating handle; and releasable means for retaining said rod in said form.

4. An outfit for curling hair, comprising in combination a plurality of forms, each adapted to have hair wound thereon, and each provided with retaining means for clamping the hair; a plurality of rods, one for each of said forms, said rods being insertable into the forms; releasable means for retaining said rods in said forms; and a heating device constructed and arranged to sustain and heat said rods simultaneously while withdrawn from said forms.

5. An outfit for curling hair, comprising in combination a plurality of hollow forms, each adapted to have hair wound thereon, and each provided with retaining means for clamping the hair; a plurality of heating members, one for each form, each such member including a glass rod insertable into the form and a heat insulating handle member; releasable means for retaining said rods in said forms; and a heating device constructed and arranged to sustain and heat said rods simultaneously while withdrawn from said forms.

6. An outfit for curling hair, comprising in combination a plurality of hollow forms, each adapted to have hair wound thereon, and each provided with retaining means for clamping the hair; a plurality of rods, one for each of said forms, said rods being insertable into the forms; releasable means for retaining said rods in said forms; and an electric heater comprising a plurality of electric resistance heating coils, one for each rod, into which the rods are simultaneously insertable when withdrawn from the forms.

7. An outfit for curling hair, comprising in combination a plurality of hollow forms, each adapted to have hair wound thereon, and each provided with retaining means for clamping the hair; a plurality of heating members, one for each form, each such member including a glass rod insertable into the form and a heat insulating handle member; releasable means for retaining said rods in said forms and an electric heater comprising a plurality of electric resistance heating coils, one for each rod, into which the rods are simultaneously insertable when withdrawn from the forms, and means serving to protect the handles of said rods from the heating effect of said coils.

8. A heating member for tubular hair curlers and the like comprising a rod and a handle formed of glass.

9. In a hair curling device, the combination of a hollow form about which the hair is wound; an electric resistance heating coil separate from and independent of the form; and a heat-conveying rod of dielectric material insertable alternately into said heating coil and into said form.

10. A heat conveying member adapted to be heated by an uninsulated electric resistance coil and, when so heated, to be inserted in a hair curling tube, comprising a rod of heat resisting dielectric material.

11. In a hair curling device, the combination of a heat absorbing element having an air passage; and a heating device into which said element may be inserted to absorb heat, the parts being so constructed and arranged that an air current is induced through said passage as said element is heated.

12. In a hair curling device, the combination of a heat absorbing element having a handle and an air passage leading through said handle and a heating device into which said element may be inserted, the parts being so constructed and arranged that a cooling air current is induced through said handle during the heating operation.

13. In a hair curling device the combination of a heat absorbing element having a handle and an air passage leading through said handle and through the body of said element; and a heating device into which said element may be inserted, the parts being so constructed and arranged that an air current is induced through said handle and the body of said element during the heating operation.

14. In a hair curling device, the combination of a heat absorbing element; an electrical heating device into which said element is insertable, said device being designed to develop heat at a definite limited rate; and means for passing a cooling air current in contact with said element at a rate which varies with the temperature of the element.

15. In a hair curling device, the combination of a tubular heat absorbing element having a handle at one end; and a heating device into which said element is insertable, said heating device being constructed and arranged to sustain the heat absorbing element in a substantially vertical position with the handle end down and to permit the passage of an induced cooling air current through the handle and thence through said element.

16. In a hair curling device, the combination of a tubular heat absorbing element, having a handle at one end; an electrical heating device into which said element is insertable; and a support in which said heating device is movable from an inactive position in which the element may be readily inserted and withdrawn and a heating position in which the heat absorbing element cannot be withdrawn and is held in a substantially vertical position with the handle end down.

17. In a hair curling device, the combination of a tubular heat absorbing element, having a handle at one end; an electrical heating device into which said element is insertable; a support in which said heating device is movable from an inactive position in which the element may be readily inserted and withdrawn and a heating position in which the heat absorbing element cannot be withdrawn and is held in a substantially vertical position with the handle end down; and means controlled by the position of said heating device, and serving to preclude the supply of heating current thereto except in said active position.

In testimony whereof I have signed my name to this specification.

WILLIAM W. DODGE JR.